

REMARKS

A. Status of the Application

The Specification has been amended. Claims 1, 5, 11, 12, 15, 17, 21, 23, 26, and 29-32 have been amended and claims 4 and 18 have been canceled. No new matter was introduced. Therefore, claims 1-17 and 19-32 are presented for reconsideration.

B. Information Disclosure Statement

The Office states that the listing of references in the Specification is not a proper information disclosure statement under 37 C.F.R. § 1.98(b). *See* Office Action, page 2. The references provided in the Specification, for example, on page 29, were not intended to constitute an information disclosure statement. Applicants submitted an Information Disclosure Statement and form PTO-1449 on January 28, 2005. Those references have been considered and made of record by the Examiner. *See* Office Action mailed August 8, 2003.

Additionally, a Supplemental Information Disclosure Statement is being filed concurrently with this paper.. Applicants request that the listed documents be made of record for this case.

C. Drawing Objections

Figures 8 and 9 are objected to for being illegible. Applicants believe that the submission of formal drawings being filed concurrently with this paper provide clear and concise replacements for Figures 8 and 9. Applicants respectfully request the objections to Figures 8 and 9 be withdrawn and the formal drawings be entered.

D. Objections to the Specification

The Specification stands objected for informalities. Applicants thank the Examiner for pointing out the inadvertent typographical errors. Applicants have amended the Specification as outlined on page 3 of the Office Action mailed August 8, 2005. No new matter was introduced. Applicants respectfully request the objections to the Specification be withdrawn.

E. Claim Objections

Claims 5, 23, 26, and 30 stand objected for informalities. Claim 5 has been amended to provide proper antecedent basis. Claims 23, 26, and 30 have been amended as suggested on page 4 of the Office Action. Applicants respectfully request the objections to claims 5, 23, 26, and 30 be withdrawn.

F. Section 112 Rejections

Claim 18 stands rejected under 35 U.S.C. §112, first paragraph for allegedly failing to comply with the enablement requirement. Applicants traverse. However, claim 18 has been canceled, rendering the rejection moot. Applicants reserve the right to pursue claim 18 in a continuing application.

H. Section 101 Rejections

Claims 29-32 stand rejected under 35 U.S.C. § 101 for allegedly being directed to non-statutory subject matter. The Examiner alleges that these claims are non-statutory because they read on tangible and intangible storage means. Applicants respectfully traverse. Nevertheless, in the spirit of cooperation, each of those claims has been amended to clarify that the recited “instructions” are computer-executable; hence, each claim is directed to statutory subject matter, and Applicants respectfully request that the current rejection be withdrawn.

I. Section 102 Rejections

1. Claims 1-4, 7, 8, 10, and 11 Are Not Anticipated

Claims 1-4, 7, 8, 10, and 11 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,281,215 to Milder. In light of the above claim amendments and the comments below, Applicants respectfully traverse.

Amended independent claim 1 recites in part:

a first temperature sensor coupled to the tip; and

a second temperature sensor coupled to the first temperature sensor and spaced apart from the first temperature sensor, the first and second temperature sensors together adapted to determine a thermal property of a sample.

Amended independent claim 11 recites a similar limitation. Support for the amendment may be found, for example, in FIG. 1 and supporting text. A thermal property, as described in the Specification may be “keyed to the relative health of a tissue sample. For instance, a thermal property may indicate whether the tissue is alive, dead, or the proximity to either of these two extremes.” (Specification, page 2, lines 20-23). At least, the claimed element set forth above is absent in the Milder reference.

Milder discloses a catheter for ice mapping and tissue ablation. *See* Abstract and Summary of the Invention. Referring to FIG. 13, catheter 100 includes temperature sensors 122, which is used for “monitoring tip temperature and for balancing the heat load with the liquid boil off.” (Column 7, lines 36-38). Milder fails to teach or suggest using temperature sensors 122 to together determine a thermal property of a sample, as recited by claims 1 and 11.

Because the Milder reference lacks disclosure of explicit elements of the claims, it cannot serve as an anticipatory reference. Applicants respectfully request the removal of the § 102 rejection to independent claims 1 and 11, and all their respective dependent claims.

2. *Claims 15 and 16 are Not Anticipated*

Claims 15 and 16 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,312,452 to Dobak, III *et al.* In light of the above claim amendments and the comments below, Applicants respectfully traverse.

Amended claim 15 recites, in part: “a plurality temperature sensors coupled to the tip for determining a thermal property of the tissue.” Support for the amendment may be found, for example, in Fig. 1 and supporting text.

In contrast, referring to FIGS. 23 and 24 of the Dobak reference, temperature monitoring device 440 and 441 are used for monitoring the temperature of body fluids. *See* column 22, lines 40-45. The Dobak reference further discloses using the temperature monitoring devices (440 or 441) to control the working fluid from the heat transfer element. *See* column 22, lines 59-61 and column 23, lines 12-22. The Dobak reference fails to teach or suggest using temperature monitoring device 440 of FIG. 23 or temperature monitoring device 441 of FIG. 24 with other temperature monitoring devices for determining a thermal property of a tissue, as recited in claim 15.

For at least these reasons, the Dobak reference does not anticipate claim 15 and its dependent claim 16. Applicants respectfully request the removal of the § 102 rejection.

J. Section 103 Rejections

1. Claims 5 and 12-14 are Not Obvious

Claims 5 and 12-14 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the cited anticipation references. As noted above, neither Milder nor Dobak teach or suggest all the elements of claim 1. Amended claim 12 recites a similar limitation as claim 1. For at least these reasons, claims 5 and 12-14 are patentably distinct over Milder and Dobak. The removal of the § 103 rejection to claims 5 and 12-14 is respectfully requested.

2. Claim 9 is Not Obvious

Claim 9 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Milder in further view of U.S. Patent No.: 6,179,831 to Bliweis. In light of the claim amendments and below comments, Applicants respectfully traverse.

As noted above, Milder fails to teach or suggest a first temperature sensor coupled to the tip and a second temperature sensor coupled to the first temperature sensor, the first and second temperature sensors adapted to together determine a thermal property of a sample, as recited in claim 1. The Bliweis reference does not cure the deficiency. Bliweis discloses a method for treating prostate hyperplasia using a cystoprobe. *See* Abstract. The cystoprobe includes a thermocouple which is used “to monitor the temperature of operating tip 108.” (Column 8, line 63-66). Bliweis is silent to any teaching or suggestion for using the thermocouple with a second thermocouple to determine a thermal property of a sample.

For at least these reasons, the Bliweis reference, either separately or in combination with Milder reference, does not render obvious claim 1 and its dependent claims. Applicants respectfully request the removal of the § 103 rejection to claim 9.

3. Claims 17-20 are Not Obvious

Claims 17-20 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Milder in further view of U.S. Patent No.: 6,679,906 to Hammack *et al.* In light of the claim amendments and below comments, Applicants respectfully traverse.

Amended claim 17 recites, in part:

a first temperature sensor mounted to the probe and adapted to monitor the temperature of the tissue engaging the probe; and

a second temperature sensor mounted radially from the probe and adapted to monitor the temperature of the tissue engaging second temperature sensor, where a difference between a temperature at the first temperature sensor and a temperature at the second temperature sensor is used to determine a thermal property of the tissue.

Support for the amendment may be found, for example, in FIG. 1 and supporting text of the Specification.

As noted above, Milder fails to teach or suggest determining a thermal property of a tissue, as suggested by independent claim 17. Hammack, disclosing a catheter used in the treatment of hypothermia or hyperthermia, fails to provide the deficiencies. *See* Summary of the Invention. The catheter may include a temperature probe used to "monitor the temperature of a blood stream, thereby enhancing both the ability to induce or treat hypothermia or hyperthermia." (Column 7, lines 3-5). Hammack fails to teach or suggest using the temperature probe to monitor the temperature of the tissue engaging the probe. Additionally, Hammack fails to teach or suggest a second temperature probe mounted radially from the probe and adapted to monitor the temperature of the tissue engaging second temperature sensor, where a difference between a temperature of the first temperature sensor and a temperature of the second temperature sensor is used to determine a thermal property of the tissue, as recited in claim 17.

For at least these reasons, claim 17 and its dependent claims are patentably distinct over Milder and/or Hammack. Removal of the §103 rejection to claims 17-20 is respectfully requested.

4. *Claims 21-28 are Not Obvious*

Claims 21-28 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Milder in further view of U.S. Patent No.: 6,270,493 to Lalonde *et al.* In light of the claim amendments and below comments, Applicants respectfully traverse.

Amended independent claim 21 recites, in part:

sensing a first temperature of the tissue at a first location using a first temperature sensor coupled to the probe;

sensing a second temperature of the tissue at a second location using a second temperature sensor spaced apart from the first temperature sensor, where the difference between the first and second temperatures determines a thermal property of the tissue.

Amended independent claim 26 recites a similar limitation. Support for the amendment may be found, for example, in FIG. 1 and supporting text of the Specification.

The Office contends that the Lalonde discloses sensing the temperature of a tissue at multiple locations. However, specific text and/or figures in the Lalonde reference describing the alleged steps of sensing a first and second temperature of a tissue were not provided by the Office in support for this rejection.

Applicants assert that the Lalonde reference does not provide the element of determining a thermal property of a tissue absent in the Milder reference. Lalonde discloses a catheter for treatment of tissue. *See* Abstract. Referring to FIG. 7, Lalonde discloses that elements 201a and 201b may be a pair of temperature sensors used “to determine which side of the tip lies in contact with adjacent tissue.” (Column 10, lines 12-13). It is believed only one temperature sensor is in contact with a tissue, and thus, Lalonde only teaches sensing at one location.

For at least the above reasons, Lalonde, separately or combined with Milder, fails to teach or suggest all the elements of claim 21 and 26. Therefore, claims 21 and 26, and their respective dependent claims are patentably distinct. Removal of the § 103 rejections to claims 21-28 is respectfully requested.

5. *Claims 29-32 are Not Obvious*

Claims 29-32 stand rejected under 35 U.S.C. for allegedly being unpatentable over the Lalonde reference further in view of the Bliweis reference. In light of the above claim amendments and the comments below, Applicants respectfully traverse.

Independent claim 29 has been amended and now recites:

Computer readable media comprising computer-executable instructions for:

- obtaining a first temperature of tissue sensed by a first temperature sensor coupled to a heat transfer probe;
- obtaining a second temperature of the tissue sensed by a second temperature sensor spaced apart from the first temperature sensor;
- comparing the first and second temperatures; and

calculating a thermal transport property of the tissue from the comparison of the first and second temperatures.

The Office contends that Lalonde discloses every element as recited in independent claim 29, but fails to provide specific passages and/or figures to support the rejection. As noted above, Lalonde discloses using temperature sensors to determine which side of the catheter is adjacent to a tissue, *e.g.*, only one temperature sensor is adjacent to a tissue. Lalonde fails to teach or suggest obtaining a second temperature of the tissue sensed by a second temperature sensor spaced apart from the first temperature sensor; comparing the first and second temperatures; and calculating a thermal transport property of the tissue from the comparison of the first and second temperatures, as recited in claim 29.

The Bliweis reference does not provide the deficiencies. As noted above, Bliweis teaches monitoring a temperature of a catheter tip and is silent to any teachings or suggestions for calculating a thermal property of a sample.

For at least the these reasons, claim 29 and its dependent claims are patentably distinct over Bliweis and Lalonde. Removal of the § 103 rejections to claims 29-32 is requested.

PETITION FOR EXTENSION OF TIME

Pursuant to 37 C.F.R. § 1.136(a), Applicants petition for an extension of time of two-months up to and including January 9, 2006 (with January 8, 2006, falling on Sunday), in which to respond to the outstanding Action. A check for the small entity fee for a two-month extension of time (\$225.00) is enclosed. Should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to the enclosed materials, or should an overpayment be included, the Commissioner is authorized to deduct or credit the appropriate fees to or from Fulbright & Jaworski Deposit Account No. 50-1212/ARCD:394US/MCB.

CONCLUSION

Applicants believe that these remarks fully respond to all outstanding matters for this application. Applicants respectfully request that the rejections of all claims be withdrawn so the claims may swiftly pass to issuance. Should the Examiner desire to sustain any of the rejections discussed in this Response, the courtesy of a telephone conference between the Examiner, the Examiner's supervisor, and the undersigned attorney at 512-536-3018 is respectfully requested in advance.

Respectfully submitted,

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AMENDMENT TO THE DRAWINGS

Claims 8 and 9 have been amended in response to the Drawing Objections. The proposed changes are detailed below in *Section C. Drawing Objections*.

Formal drawings are also submitted concurrently with this response. Applicants respectfully request the Examiner approve the drawings as submitted.